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Review

Eating and stress at work: The need for public health promotion intervention and an opportunity for food product development?

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Given the large proportion of time spent at work, it is surprising that relatively little research has been devoted to understanding food selection in the work place. A growing literature suggests that stress, particularly occupation-related stress, negatively impacts upon food choice and may contribute to population ill health. The consensus is that work stress induces consumption of foods that are high in sugar, fat and salt which are likely to contribute to overweight and have long-term detriment to health. The interaction between stress and eating appears to vary by sex and type of work undertaken. This paper argues an imperative for further longitudinal and intervention research to understand interactions between food choice and stress in the work context with a view to the design of dietary health promotion and the development of nourishing food products targeted at those experiencing stress and which could be made accessible in the work place.

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Introduction

More than two thirds of the population of the UK (71.4%) (ONS, 2013) and Europe (64.2%) (Eurostat, 2012) are currently in employment with average working hours per week ranging from 39 in Denmark to 42.7 in the UK and 43.7 in Austria and Greece (Eurostat, 2012). A large proportion of our lives, therefore, may be devoted to work and long periods of time spent in the work place. Our experiences in the work place and the feelings they evoke are likely to affect our health behaviour with implications for both our personal and public health. The Whitehall Studies (eg. Chandola, Brunner, & Marmot, 2006), for example, have indicated tenuous links between working conditions, stress and health. The link between shift-work (van Mark, Spallek, Kessel, & Brinkmann, 2006) and long working hours (van der Hulst, 2003) and ill-health has also been well-documented. The mechanisms driving the association between work and health, however, remain uncertain and require further research. Recent survey (Rosenthal, Carroll-Scott, Earnshaw, Santilli, & Ickovics, 2012) has suggested that working, particularly if full-time, is associated with more positive health behaviour. Cost benefit analyses are nevertheless convincing of the potential for increased productivity and enhanced employee performance as a consequence of work-site health-related intervention (Goetzel & Ozminkowski, 2008). The work place, therefore, constitutes an ideal environment in which to research and implement health promoting intervention (Siddiqui & Shahid, 2012).

For at least some of the time we are at work, we may experience stress. Stress has been defined as a response to demands made by the internal or external environment that affect physical and psychological wellbeing (Lazarus & Cohen, 1977, ch 3). Work-related perceived stress may be acute and/or chronic. Whereas acute stress is that which occurs in response to a specific incidental stressor, chronic stress is that which occurs in response to a continuous stressor and which endures over a period of time. Work-related stress may be acute or chronic and detrimental to health both through somatic pathways and as a driver and/or a consequence of unhealthy lifestyle practices. Meanwhile, there is a growing interest among nutritional scientists and the food industry in the interaction between stress and eating behaviour. Better understanding of the interaction between stress and eating behaviour at work could inform potential dietary health promotion work place

intervention and the development of health food products to consume when stressed at work.

Conceptual framework and method

This review article discusses the role of stress in eating behaviour and explores evidence for links between dietary habits and stress with special reference to the work place which is a topic of increasing interest and relevance to both dietary health promoters and food product developers. Technological advances, along with increasingly sedentariness within and beyond the work-place, are among many complex factors likely to interact with psychological well-being and dietary habits and which may contribute to poor health (Dunstan, Howard, Healy, & Owen, 2012). That not all of these factors are modifiable through dietary means, however, renders unbiased consideration of them beyond the scope of this paper. The purpose of this analysis has been to consider possible mechanisms through which stress, both acute and chronic, may impact upon eating behaviour and to evaluate the quality, strength and concensus of the evidence for stress as a driver of food choice in the work-place. The way in which stress impacts upon dietary habits and how convincing the evidence for stress as a driver of dietary habits in the work place are also analysed. Gaps in existing knowledge and the utility of existing studies to inform future dietary health promotion and healthy food product development have been discussed. Implications for health promotion and food product development have also been considered. Web of Science was searched using the key words Food/Diet/Nutrition entered with Psychological/Job/Work/Occupational Stress and limited to publications listed between January 1990 and July 2013. Studies of children and of clinical populations including those with eating disorders have been excluded. The overarching aim of this review has been to better understand the interaction between stress and eating behaviour at work and to determine how best to research and intervene to encourage healthy eating in the work place.

How does stress affect food choice?

The mechanism through which stress influences food choice is uncertain but is likely to be complex, multifactorial and involve hormonal interactions and metabolic processes as well as individual differences in psychological and neurochemical response to stress and eating. Acute and chronic stress may impact differently upon food choice. Acute stress stimulates the hypothalamic pituitary axis (HPA) system to secrete the hormone cortisol which, through the action of insulin, mobilises energy stores to fuel the fight and/or flight response. That the paraventricular nucleus contains circuits that both stimulate the release of corticotrophin and control food intake adds weight to this theory (Maniam & Morris, 2012). Chronic stress, in contrast, although also associated with increased corticosteroid secretion, appears to disrupt homeostatic control of eating by bringing about insulin and leptin resistance (Adam & Epel, 2007). Leptin is a hormone present in adipose tissue which is thought to act synergistically with neuropeptide Y (secreted by the hypothalamus) in the regulation of energy intake and body fat distribution. Chronic stress-induced cortisol secretion, therefore, is likely to be associated with reduced levels of insulin and leptin, which interact to bring about changes in appetite and fat metabolism (Lowden, Moreno, Holmbäck, Lennernäs, & Tucker, 2010). Evidence for this comes from observations in mice exposed to a stress challenge, after which they were fed a high-fat diet, which together were shown to produce lower levels of both insulin and leptin (Finger, Dinan, & Cryan, 2011). Stress-induced dopamine also appears associated with circulating leptin level in humans (Burghardt *et al*., 2012). Ghrelin is a peptide secreted by the lining of the stomach (Uchida, Zigman, & Perello, 2013) which evidence from research in rats suggests, like leptin, is also involved in the regulation of appetite (Wang, Dong, Cheng, & Zhao, 2007). Stress is thought to elevate plasma grehlin (Schellekens, Dinan, & Cryan, 2012).

The relationship between stress, inflammation and eating appears circular. Stress may not only drive unhealthy eating practices but also exacerbate pathological metabolic response to such foods (Kiecolt-Glaser, 2010). People who report high levels of stress tend to have elevated markers of oxidative stress which may be ameliorated by antioxidant consumption. The relationship between stress and eating is also likely to be bi-directional. Both rodent (Mitra, Crump, Alvers, Robertson, & Rowland, 2011) and human (Laugero, Falcon, & Tucker, 2011; Toda & Morimoto, 2007) studies have implied that snacking on high fat containing foods stimulates the release of cortisol. Another study (Lemmens, Rutters, Born, & Westerterp-Plantenga, 2011) which intervened with either a high protein or a high carbohydrate meal, however, observed no difference in salivary cortisol in healthy normal weight volunteers subsequent to a stressful task. This implies that the macro-nutrient content of snacks may be important in mediating the effect of stress. Another way in which stress may influence food selection is through altering sensory preference. One of the few existing human studies of the sensory experience of food under conditions of stress (Gibson, 2006), has suggested that the pleasant sensory properties and post-ingestion reward effects of eating certain foods may ameliorate stress by reducing the HPA axis stress response. Other research, in contrast, has observed no change in food preference in response to stress (Zellner, Saito, & Gonzalez, 2007). Future work directed toward developing diets and foods to be made available in the work place would do well to include sensory preference measures along with those assessing stress and dietary habits.

How do eating habits alter in response to stress?

Artificially induced acute stress has been shown to produce higher energy intake (Lemmens, Born, Martens,

Martens, & Westerterp-Plantenga, 2011; Rutters, Nieuwenhuizen, Lemmens, Born, & Westerterp-Plantenga, 2009; Schwab & Wolf, 2009). Other laboratory-based studies have found increased snacking to be associated with heightened stress-induced cortisol secretion (George, Khan, Briggs, & Abelson, 2010; Torres, Turner, & Nowson, 2010). Survey studies have also indicated associations between perceived stress and higher energy intake, a large proportion of which tends to be derived from high fat and carbohydrate rich foods and less from consumption of fruit, vegetables and fibre (Hinote, Cockerham, & Abbott, 2009; Laugero *et al*., 2011). Salt intake may also be driven by stress. Rodent studies have observed heightened stress response in response to salt deprivation (Leshem, 2011). Human research into stress and salt intake, however, has failed to find alteration in salt intake in response to acute stress (Torres *et al*., 2010).

There appear to be individual and sex differences in the interaction between stress and eating behaviour. A laboratory-based stress challenge study observed more snacking on crisps and sweets in males who were not subjected to lab-induced acute stress than those who were (Zellner *et al*., 2007). Survey studies appear to corroborate this in that high self-reported stress is associated with decreased eating in males but not in females (Torres & Nowson, 2007). Females, in contrast, may have a particular tendency to over eat during stress (Hellerstedt & Jeffery, 1997; Kawakami *et al*., 2006; Lalluka *et al*., 2004; Zellner *et al*., 2006). Female students from a range of cultures and nationalities who reported high levels of perceived stress indicated greater consumption of confectionary and fast food and less of fruits and vegetables than those who reported lower stress (Mikolajcyk, Ansari, & Maxwell, 2009). This may be explained to some degree by sex differences in stress response. Females with a tendency to respond to stress by increasing cortisol secretion have been observed to consume more sweet and high energy foods than women who did not (Epel, Lapidus, McEwen, & Brownell, 2001). That females may be more prone to stress-related eating than males implies that more research is required within female dominated workplaces.

Individual differences in eating style may mediate the relationship between stress and eating. 'Restrained' eaters (van Strien, Frijters, Bergers, & Defares, 1986), for example, appear especially prone to overeating when stressed (Greeno & Wing, 1994). 'Emotional eaters', in particular, are more likely to report over-eating high fat and sweet foods when stressed (Oliver, Wardle, & Gibson, 2000; Wallace & Hetherington, 2008). Interactions between stress and eating style may be gender dependent. Women identified as 'stress-driven' eaters reported consuming take-away 'fast' foods (sausages, burger and pizzas) and chocolate more frequently than those who were not (Laitinen, Ek, & Sovio, 2002). Grehlin levels have been observed to spike in 'emotional' eaters subsequent to food consumption during a laboratory induced stress challenge (Raspopow, Abizaid, Matheson, & Anisman, 2010). Together, these findings imply an interaction between stress, the stress response, sex, eating style and eating habits. Ethnicity may further explain some differences in both stress and eating habits (Kiviniemi, Orom, & Giovino, 2011) and requires further research.

Most stress we experience is chronic in nature. By virtue of its endurance over time, chronic stress could be expected to impact upon food habits and subsequent health to a greater degree than acute stress. Recent survey has suggested that reported chronic stress is associated with perceived lack of control of eating (check method) (Groesz *et al*., 2012). Chronic life stress has been shown to be associated with increased consumption of high fat, high sugar containing foods (Hou *et al*., 2013; Roberts, 2008; Torres & Nowson, 2007). Research into chronic stress has also implied sex differences in the impact of stress upon eating behaviour and health. Recent review of fourteen studies of obesity (Moore & Cunningham, 2012) concluded that higher stress was associated with less healthy eating and greater obesity particularly in females. Overweight females ($N = 41$) who reported high chronic stress increased calorie consumption in response to an artificial stressor (Tryon, de Cant, & Laugero, 2013). Meanwhile, there appears a dearth of longitudinal studies into chronic stress and eating behaviour in real world contexts.

How do eating habits alter in response to work-related stress?

Much of the evidence for an association between work-related stress and eating behaviour has been derived from cross-sectional survey and epidemiological studies (Table 1). Such studies have suggested that perceived work-related stress tends to be associated with greater consumption of fast food and lesser intake of fruit and vegetables (Barrington, Cebellos, Bishop, McGregor, & Beresford, 2012). The type of work undertaken appears unimportant in the association between acute stress and eating. The Nurses' Health Study which was recently conducted in the United Kingdom (Chaplin & Smith, 2011), found that those who reported a greater work load and higher stress tended to snack more frequently than those who were less stressed on items such as chocolate, crisps and biscuits. This replicated the findings of several previous studies conducted across various cultures. Academic staff (Kandiah, Yake, & Willet, 2008) and factory workers (Ng & Jeffery, 2003) in the USA, civil servants (Toyoshima *et al*., 2009) and agricultural workers (Tstsumi *et al*., 2003) in Japan, truck drivers in Brazil (Penteado, Goncalves, da Costa, & Maques, 2008), factory workers in Korea (Park & Jung, 2010) and civil servants in Poland (Potocka & Moscicka, 2011) who experienced stress at work, also tended to report unhealthy dietary patterns. These effects may be exacerbated by shift work (Lowden *et al*., 2010). Work-related stress appears specific in the

Table 1. Stress and eating in the work place.

Author/date	Sample size/type	Study design	Stress measure	Dietary assessment	Results	Comments
Barrington *et al.*, 2012	$N = 621$ Age 18–65 yrs $M = 264/F = 357$ 33 Work sites USA	Survey	Perceived Stress Scale	Nat Cancer Inst 5 a-day fruit/veg Single item fast food/ soft-drinks	Less frequent fruit and veg and more frequent fast food intake assoc with higher perceived stress.	Nature of work not reported
Chaplin & Smith, 2011	$N = 870$ 790f/75m age 22–67 yrs/m45 yrs Nurses GB	Cross-sectional survey	Single item 5-point scale	Factor analysed 6-point FFQ breakfast and snacking	Snacking (chocolate, crisps, biscuits) assoc with work stress	
Potocka & Moscicka, 2011	$N = 160$ Civil servants Poland				Higher job stress, work load, lack of autonomy assoc with less healthy eating	Abstract only
Lowden *et al.*, 2010	Shift workers	Review			Shift work affects appetite	
Park & Jung, 2010	$N = 804$ Korea				Higher job stress assoc with less healthy eating	Abstract only
Suominen-Taipale *et al.*, 2010	$N = 12,108$ Fishermen, civil servants Finland	Survey meta-analysis	General Health Quest (GHQ)	General Health Quest (GHQ)	No assoc between eating fish or omega-3 pufa intake and psychological distress	
Toyoshima *et al.*, 2009	$N = 1080$ Male Age m 47 yrs Civil servants Japan	Survey	Single item 4-point scale	48-item Diet History Questionnaire (DHQ)	Higher stress assoc with higher energy intake	
Kandiah *et al.*, 2008	$N = 185$ (121f/63m) Age 36–65 yrs University staff USA	Cross-sectional survey	31-item Stress-Eating Survey	Checklist of foods eaten, snacking	Increased sweet and salty food eaten when stressed	Interaction with 'restraint'
Pentad *et al.*, 2008	$N = 400$ Male Truck drivers Brazil	Survey	Not assessed	Not assessed	Reported negative emotional states Majority (85%) frequently consumed fatty foods	Descriptive study
Lalluka *et al.*, 2008	$N = 11680$ Age 45–60 yrs Civil servants Finland (Helsinki Health Study); GB (Whitehall II); Japan (Civil Servant Study)	Survey met-analysis	Job Content Questionnaire	Healthy diet defined as eating fruit and vegetables at least twice a day, eating whole grains and low fat milk	Overtime assoc with a healthy diet in British Job strain unrelated to diet in Japanese and Fins	Cultural differences
Chaput *et al.*, 2008	$N = 14$ Female Age 20–30 yrs/m22.8 yrs Students Canada	Controlled crossover Trial	Control-rest Cond. 1-reading Cond. 2 -cognitive task	Ad libitum food intake	Increased energy intake from fat and carbohydrate after the cognitive task compared to control	

(*continued on next page*)

Table 1 (*continued*)

Author/date	Sample size/type	Study design	Stress measure	Dietary assessment	Results	Comments
O'Connor *et al.*, 2008	*N* = 422 Students GB	Diary study	Incidental stress	Diary record	More frequent snacking and less healthy eating associated with stress	
Chaput & Tremblay, 2007	*N* = 15 Age 20–30 yrs Students Canada	Controlled crossover trail	STAI Control-rest Cond. 1-cognitive task	1-day diet record Ad libitum intake	Energy, fat, carbohydrate and protein intake higher following the cognitive task compared to rest	
Kawakami *et al.*, 2006	*N* = 25104 *F* = 2853/*M* = 15295 Manufacturing companies (9) Japan	Cross-sectional survey	Job Content Questionnaire	Dietary History Questionnaire	Males: Higher Job Strain assoc with higher fat, and vit E intake. Higher Job Demands assoc with higher energy, fat, fibre, carotene, vits A and E. Higher Job Control assoc with higher energy, fibre, calcium, carotene, vit c and lower fat. Females: Higher Job Demands assoc with higher salt intake	Associations weak Sex differences
Macht *et al.*, 2005	Students	Longitudinal survey	Not assessed	Reported eating	Increased food intake during exam period	
Lallukka *et al.*, 2004	*N* = 6243 *F* = 4991/ *M* = 1252 Age 40–60 yrs Public emp Finland	Cross-sectional survey	Job Content Questionnaire	22-item FFQ	Males: No assoc between Job Content and diet Females: Lower job strain assoc with healthier diet	Associations weak Sex diffs
O'Connor & O'Connor, 2004	*N* = 155 Female Students GB	Survey	14-item Perceived Stress Scale (PSS)	Perceived increase/ decrease intake of sweet and savoury snacks	Increased snacking on confectionary during 2-week period of exam stress	
Ng & Jeffery, 2003	*N* = 12110 Workers 26 companies	Cross-sectional survey			Higher stress assoc with higher fat diet	Abstract only
Tsutsumi *et al.*, 2003	*N* = 6759 Male Rural workers Japan	Cross-sectional survey	Job Content Questionnaire		Job Strain and Low Job Control assoc with lower vegetable intake	Abstract only
Barros & Nahas, 2001	*N* = 4118 67.5% Male Age m30 yrs Indust workers Brazil	Cross-sectional survey	Single item 4-point scale	Fruit and vegetable intake	Males: Higher stress assoc with less freq fruit and veg intake Females: No assoc between stress and intake	
Wardle *et al.*, 2000	*N* = 90 *F* = 58/M32 Age m35 yrs Retail employees UK	Longitudinal survey (4 time-points)	Perceived Stress Scale (PSS)	24-h diet recall	Energy, fat and sugar intake higher during high work stress	Interaction with 'restraint'

Hellerstedt & Jeffery, 1997	$N = 3843$ $F = 1872/M = 1971$ Age m38 yrs 12 work sites USA	Cross-sectional survey	Job Content Questionnaire	18-item FFQ	Males: Higher Job Strain assoc with higher fat intake Females: no association bet job demand and diet	Sex diffs
Weidner *et al.*, 1996	$N = 133$ Students				Increased food intake during exam period	Abstract only
Pollard *et al.*, 1995	$N = 179$ $F = 48/M = 16$ Students				Increased food intake during exam period	Abstract only
Michaud *et al.*, 1990	Students				Increased food intake assoc with stressful events	Not available
McCann *et al.*, 1990	$N = 10$ M and F Age 33–62 yrs University admin USA	Observation trial – 3 occasions	Single-item scales to assess stress/work load	4-Day food record	High work load associated with higher energy and fat	

type of food choices that are affected. Pooled data derived from the Finnish Fishermen Study, Health 2000 Study and the Finntwin Study, failed to find any association between the either frequency of fish consumption and/or dietary omega-3 PUFA and psychological distress assessed by means of the GHQ (Suominen-Taipale *et al.*, 2010).

Large scale epidemiological studies that have measured job stress using the Job Content Scale (Karasek, 1985) have suggested that there may be cultural differences in how job related stress interacts with food intake (Table 1). Pooled results of three large studies carried out in Finland (Helsinki Health Study), Britain (Whitehall study) and Japan (Civil Servants Study) indicated cultural differences in the association between psychosocial working conditions and eating habits (Lallukka *et al.*, 2008). Whereas working conditions and eating behaviour were unrelated in the Finnish workers, British workers working overtime actually reported healthier dietary habits than those working normal hours. Epidemiological studies have also suggested that relationships between stress at work and eating habits vary by sex (Table 1). A study of male and female employees recruited within public service institutions and manufacturing sites in Minneapolis (Hellerstedt & Jeffery, 1997) assessed job demands (working fast; working hard; having enough time to do the job; freedom from conflicting demands; and, excessive amount of work) using the Job Content Scale (Karasek, 1985). The frequency with which high fat containing foods (meat; milk; cheese; fats; sweets; eggs; and chips) were consumed was assessed using an 18-item food frequency questionnaire (FFQ) and found to be higher among men in high strain and active jobs than among men with less demanding jobs. There was no association between job strain and eating in women. Survey of Brazilian industrial workers indicated an association between infrequent fruit and vegetable consumption and higher reported stress in males but not in females (de Barros & Nahas, 2001). Results from the Helsinki Health Study (Lallukka *et al.*, 2004) of older (aged 40+) adults have also implied sex differences in the association between dietary habits and job strain. The frequency with which healthy food such as fruit, vegetables whole grains, fish and vegetable oil were consumed was associated with lower job strain and mentally strenuous work in women. Working conditions and eating habits, in contrast, were unrelated in men. A study of Japanese workers (Kawakami *et al.*, 2006) also found that greater job strain was associated with more frequent fat consumption in males. Also in males, greater perceived job control was associated with higher energy, fibre, calcium, carotene and vitamin C intake. The consensus of these studies is that stress at work has greater negative impact upon the dietary habits of males than females emphasising the importance of considering sex differences in the study of stress and eating.

Studies of acute work-related stress and eating have suggested that lowering of blood sugar in response to stress is what triggers eating. Female students in Canada consumed

higher (ad libitum) intakes of energy from fat, carbohydrate and protein following completion of a (stressful) cognitive task compared to after a control condition (Chaput, Drapeau, Poirier, Teasdale, & Tremblay, 2008; Chaput & Tremblay, 2007). Work that requires cognitive effort appears to stimulate the release of insulin, possibly in response to cortisol, thereby inducing eating. A lowering of blood sugar was observed concurrently in those undertaking the cognitive task which was assumed to have triggered the observed higher energy intake (Chaput *et al*., 2008). Such studies could imply a requirement for diets and foods that maintain insulin at a constant level.

Few studies of stress and eating behaviour appear to have been conducted in real world work contexts (Table 1). Those that exist have found that energy, fat and sugar intakes tend to increase during periods of stress (McCann, Warnick, & Knopp, 1990; Wardle, Steptoe, Oliver, & Lipsey, 2000). Increased eating has been reported by students during periods of exam related stress (Macht, Haupt, & Ellgring, 2005; Pollard, Steptoe, Canaan, Davies, & Wardle, 1995; Weidner, Kohlmann, Dotzaur, & Burns, 1996) and frequent snacking on days during which stressful events occurred (Michaud *et al*., 1990; O'Connor, Jones, O'Connor, McMillan, & Ferguson, 2008; O'Connor & O'Connor, 2004). Work place stress tends to be chronic in nature and likely to be characterised by particular types of instrumental dietary behaviour. Studies of work-related stress and eating, however, have tended to focus upon acute, artificially induced stress rather than naturally occurring or chronic stress.

Summary

Stress may be either an antecedent or a consequence of adverse eating practices. That previous research into stress and eating has been mainly lab-based, epidemiological and/or cross-sectional, however, renders it difficult to discern the causative nature of the relationship between stress, work and eating. Existing investigative studies have been limited in the degree to which they can explain stress induced eating in the context of everyday life and work as they have induced stress through laboratory-based artificial means. Such studies may have limited validity rendering it difficult to extrapolate to stress, particularly chronic stress as experienced in the real world context. Given that only acute stress can be induced in the laboratory further limits the utility of such studies for understanding associations between stress and eating. Evidence as to the mechanisms through which stress alters eating is underdeveloped and likely to deter investment in research and development of work place dietary interventions and concomitant food product development. There is a requirement, therefore, for further intervention studies to establish mediating factors and determine the direction of causation in the relationship between stress and eating behaviour. There is also an apparent lack of research that has investigated stress and eating habits longitudinally in a 'naturalistic' food choice context. Hence, the imperative for controlled investigation into the interaction between stress, both acute and chronic, and eating in a range of working populations and in naturalistic settings such as the work place.

Surveys have evidenced the impact of work-related stress upon food choice across cultures and are of the consensus that acute stress at work is synonymous with high energy intake and unhealthy eating practices. The type of foods consumed in the work place whilst stressed tend to be high in sugar, fat and salt and in the short-term, therefore, likely to contribute to overweight and have long term health implications. Existing studies have suggested that although females are more prone to life-stress related eating than males, males are more prone than females to work-stress related eating. Such differences may be a function of sex differences in the type of employment and the level of responsibility the different jobs incur. Meanwhile, further research in various employment populations and work environments is needed to explore in depth the interaction between sex, job stress and eating behaviour. Such research should seek to inform the development of healthy food products for work-site consumption with potential to ameliorate stress both through the sensory experience and nutritional benefits they afford.

Conclusion

This review concludes that stress and eating is an under-researched area that is poorly understood. The mechanisms through which stress interacts with food selection appear complex and are as yet unclear. What research exists, whilst convincing of the association between stress and unhealthy food choice in the work place, has largely been of prospective survey design and has taken self-reported indicators of stress and dietary intake (Table 1) rendering them of limited value in unravelling the cause and effect relationship between stress and eating behaviour. Existing studies have also neglected the differential effect of acute and chronic work place stress upon food selection. Taken together, the evidence points to market potential for foods that function to reduce stress and promote dietary health while at work. Meanwhile, longitudinal studies in the work context are required which could then be used to inform and design healthy palatable stress-reducing diets and foods for consumption in the work place. The impact of such interventions both on public health and productivity is potentially immense.

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